NORTH CAROLINA DIVISION OF AIR QUALITY

Air Permit Review

Permit Issue Date:

Region: Raleigh Regional Office
County: Wake
NC Facility ID: 9200603
Inspector's Name: Steven Carr
Date of Last Inspection: 04/09/2015
Compliance Code: 3 / Compliance - inspection

Facility Data

Applicant (Facility's Name): City of Raleigh Wilders Grove Landfill

Facility Address:
City of Raleigh Wilders Grove Landfill
4120 New Bern Avenue
Raleigh, NC 27610

SIC: 4953 / Refuse Systems
NAICS: 562212 / Solid Waste Landfill

Facility Classification: Before: Title V **After:** Title V
Fee Classification: Before: Title V **After:** Title V

Permit Applicability (this application only)

SIP: 15A NCAC 2Q .0513
NSPS: 40 CFR Part 60 Subpart WWW
NESHAP: 40 CFR Part 63 Subpart AAAA
PSD: N/A
PSD Avoidance: N/A
NC Toxics: Removed 15A NCAC 2Q .0705 and 2D .1100 and 2Q .0711.
112(r): N/A
Other: N/A

Contact Data

Facility Contact	Authorized Contact	Technical Contact
Frederick Battle Solid Waste Services Director (919) 996-6867 630 Beacon Lake Drive Raleigh, NC 27610+0590	Ruffin Hall Raleigh City Manager (919) 996-3070 Raleigh Municipal Building Raleigh, NC 27601	Frederick Battle Solid Waste Services Director (919) 996-6867 630 Beacon Lake Drive Raleigh, NC 27610+0590

Application Data

Application Number: 9200603.14A
Date Received: 10/31/2014
Application Type: Renewal
Application Schedule: TV-Renewal

Existing Permit Data
Existing Permit Number: 08835/T03
Existing Permit Issue Date: 08/18/2010
Existing Permit Expiration Date: 07/31/2015

Total Actual emissions in TONS/YEAR:

CY	SO2	NOX	VOC	CO	PM10	Total HAP	Largest HAP
2014	1.25	2.59	1.73	49.02	1.10	1.51	0.6855 [Hydrogen chloride (hydrochloride)]
2013	22.90	1.46	3.70	27.88	0.6200	0.8076	0.2752 [Toluene]
2012	0.8200	0.4400	3.90	2.40	0.1100	1.22	0.4560 [Toluene]
2011	0.8500	0.2800	4.06	1.50	0.0700	1.43	0.4745 [Toluene]
2010	0.8900	0.1700	3.85	0.9300	0.0400	1.92	0.6893 [Toluene]

Review Engineer: Yukiko (Yuki) Puram

Review Engineer's Signature: **Date:**

Comments / Recommendations:
Issue: 08835/T04
Permit Issue Date:
Permit Expiration Date:

1. Purpose of Application

The City of Raleigh Wilders Grove Landfill (The Wilders Grove landfill) is located at 4120 New Bern Avenue, in Raleigh, Wake County, North Carolina. This facility is owned and operated by the City of Raleigh. This application (9200603.14A) was received on October 31, 2014, or at least nine months prior to the expiration date. Therefore, the existing permit shall not expire until the renewal permit has been issued or denied. All terms and conditions of the existing permit shall remain in effect until the renewal permit has been issued or denied.

2. Facility Description

The Wilders Grove landfill is an unlined municipal solid waste landfill which opened in 1962 and closed in 1997 due to implementation of State regulations for unlined landfills. The City constructed the final cover over the active portions of the landfill between 1998 and 2000. This landfill was used to collect household, commercial, and industrial wastes from the Raleigh-Wake County Metropolitan area. This facility participates in a waste-to-energy project with a nearby facility named Ajinomoto, Incorporated, in which landfill gas is burned as fuel in two boilers. However, the landfill gas pipeline was damaged in August 2013 and the landfill gas has not been sent to Ajinomoto since that time. The landfill gas that is not sent to the boilers is burned in an onsite flare. The estimated capacity of the landfill is 4.3 million megagrams.

3. History/Background/Application Chronology

Application Chronology

October 31, 2014	Application for permit renewal was received.
November 5, 2014	DAQ sent an acknowledgment letter indicating that the application for permit renewal was complete.
November 18, 2014	The Raleigh Regional Office (RRO) submitted comments on the permit renewal application.
August 17, 2015	I sent an email to Ms. Kerri Hartung of URS Coporation and Mr. Frederick Battle of the City of Raleigh to inquire about the ownership of the treatment system.
September 8, 2015	Ms. Hartung submitted HCL emissions calculations.
September 15, 2015	The applicant was requested to update the HCL emissions due to the incomplete calculations.
December 3, 2015	The updated HCL emissions along with 2014 emissions inventory report was submitted to the RRO. No extra copy was provided.
January 11, 2016	The updated HCL emissions calculations were received in RCO.
January 25, 2016	I sent an email to Ms. Hartung inquiring about the ownership of the treatment system and the facility's request for removing the toxic air pollutant conditions.

January 28, 2016	Ms. Hartung responded to my email indicating that the facility requested to remove the toxic conditions.
February 8, 2016	Mr. Booker Pullen of DAQ reviewed the draft and the permit review.
February 8, 2016	A draft permit and the permit review were sent to the applicant, Ms. Hartung and Mr. Charles McEachern of RRO for review.
February 10, 2016	Charles McEachern of RRO reviewed the draft and the permit review.
February 18, 2016	DAQ received a letter of consent from Mr. Ruffin Hall, City Manager, to delegate the duties and the responsibilities of responsible official to Ms. Tansy Hayward, Assistant City Manager. An updated Form AA was also submitted with the new responsible official's name and the signature. The permit will be issued under the new responsible official's name.
February 19, 2016	Ms. Hartung submitted comments to the draft permit and the permit review on behalf of the applicant.

4. Permit Modifications/Changes and TVEE Discussion

The following table describes the changes to the current permit as part of the renewal process.

Existing Page(s)	New Page(s)	Section	Description of Changes
Cover and throughout	Cover and throughout	-	Updated all dates and permit revision numbers.
Cover	Cover	Header/Footer	Updated the header and the footer with the new department name and the logo.
Cover	Cover	Throughout	Updated the name of the responsible official.
N/A	Cover	Page 2	Added a PSD tracking statement.
3	3	Emission Source Table	• Removed F-6102 and F-6103
3	3	Summary Table	• Changed the description of "Limits/Standards" of NMOC. • Removed toxic air pollutants.
4-11	4-15	2.1.A.3 and A.4	Changed the references to the specific sections of the permit itself instead of referring to the federal codes.
N/A	4	2.1.A.3.a	Added NSPS general conditions.
N/A	4-5	2.1.A.3.b	Added the "Standards for Air Emissions from Municipal Solid Waste Landfills" section.
5	5	2.1.A.e.g.i	Removed the conditions that are not applicable to a closed landfill.
N/A	7	2.1.A.3.h.i	Inserted an actual equation required to calculate NMOC emissions.
5	N/A	2.1.A.3.d	Deleted the conditions specific to the first 180 days after gas collection system startup.
6-7	8-9	2.1.A.3.j	Reworded the condition for annual methane surface concentration monitoring. A requirement to switch back to quarterly monitoring was added later in the section.
N/A	7	2.1.A.3.h.ii	Added a condition to determine sufficient density of gas collector.

Existing Page(s)	New Page(s)	Section	Description of Changes
N/A	7	2.1.A.3.h.v	Added a reporting condition when the facility chooses to operate at a higher operation value at specific wells.
4	9	2.1.A.3.m	• Moved the testing conditions after the compliance provisions. • Added calculation methods to determine removal of the control system, and to calculate for the PSD applicability. • Added a noncompliance language.
N/A	10	2.1.A.3.q	Added a requirement to increase the monitoring frequency when an exceedance is recorded.
8	10	2.1.A.3 Recordkeeping Requirements	Added a noncompliance language.
9	11	2.1.A.3.t	Combined three paragraphs into one.
9	11	2.1.A.3.u	Combined three paragraphs into one.
9	N/A	2.1.A.3.g	Removed the "Specification of Active Collection System" section since the collection system is already installed and the landfill is closed.
9	N/A	2.1.A.3.h	Deleted the well closure condition as it was included in the "Operational Standards for Collection and Control Systems"
10	N/A	2.1.A.3.i.(B)	Removed the initial annual report and the initial performance test report conditions.
N/A	12	2.1.A.3.y	Added a reporting condition prior to removal or cessation of operation of the control equipment.
10	N/A	2.1.A.5	Removed the following MACT conditions. • applicability • definitions and nomenclature • regulated pollutants • compliance dates
N/A	12-13	2.1.A.4.b and c	Added the operation/emission standards and the SSM provision.
11	13	2.1.A.4.d	Added the noncompliance language
11	13	2.1.A.4.e	Updated the language to be consistent with 40 CFR 63.1965.
11	13	2.1.A.4.f	Updated the language to be consistent with 40 CFR 63.6(e)(iii).
11	13-15	2.1.A.4.h through l	Updated the language to be consistent with 40 CFR 63.6(c)(iii), 63.6(c)(iv) and 63.6(c)(v).
11-12	N/A	2.1.A.6 and A.7	Removed the toxic air pollutant emissions requirements.
13-21	15-23	3	Updated the general conditions to version 4.0.

TV Equipment Editor was modified on January 25, 2016. Two boilers (ID Nos. F-6102 and F-6103) that are owned and operated by another Permittee (Ajinomoto) were removed. One gas treatment system (ID No. CD-Treatment) was removed from CS-1 because the treatment system is independent of the flare. CS-2 was created to include one landfill gas collection and control system (ID No. CD-GCCS1) and CD-Treatment. Both CS-1 and CS-2 are associated with municipal solid waste landfill (ID No. ES-001).

5. Regulatory Review

A. Municipal Solid Waste Landfill (ID No. ES-001): Municipal solid waste landfill controlled by gas collection system (ID No. CD-GCCS1), one landfill-fired candlestick-type flare (ID No. CD-LFG-S4) and one landfill gas treatment system (CD-Treatment) are subject to the following regulations. Two boilers (ID Nos. CD-Boiler-1 and CD-Boiler-2) were removed from the emission source table because they are permitted under Ajinomoto North America, Inc. (Permit No. 04434R22).

The permit will be updated to reflect the most current stipulations for all applicable regulations. The stipulations were reorganized in order to list them by the citation numbers.

15A NCAC 2D .0516: SULFUR DIOXIDE EMISSIONS FROM COMBUSTION SOURCES
One landfill-fired candlestick-type flare (ID No. CD-LFG-S4) is subject to this regulation. No change was made during this renewal.

15A NCAC 2D .0521: CONTROL OF VISIBLE EMISSIONS
One landfill-fired candlestick-type flare (ID No. CD-LFG-S4) is subject to this regulation. No change was made during this renewal.

15A NCAC 2D .0524, 40 CFR Part 60, Subpart WWW "New Source Performance Standards"
This landfill is subject to 40 CFR Part 60, Subpart WWW. Due to the capacity of the landfill, the facility is subject to Title V permitting. The facility is required to install a GCCS per §60.752 since their NMOC emissions are over the 50 Mg threshold. Although the requirements stay the same, the format of the permit conditions was updated to be more compatible to the DAQ's typical permitting format. Requirements that are not applicable specific to this facility were removed, and some applicable conditions were added. In order to make the requirements more clear to the Permittee, instead of referencing to the federal regulation codes, specific section of the permit itself was used for a reference where possible. See the permit change table in Section 4 for more detail.

15A NCAC 2D .1111, 40 CFR Part 63, MACT Subpart AAAA – The facility is subject to MACT Subpart AAAA per §63.1935(3) since uncontrolled NMOC emissions are estimated to be more than 50 Mg/yr. In addition to the existing requirements in T03, the following SSM plan requirements were added to the permit:

Startup, Shutdown and Malfunction Plan [40 CFR 63.6(e)(iii)]
The Permittee must develop a written startup, shutdown, and malfunction plan that describes, in detail, procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction; and a program of corrective action for malfunctioning process, air pollution control, and monitoring equipment used to comply with the relevant standard. The startup, shutdown, and malfunction plan does not need to address any scenario that would not cause the source to exceed an applicable emission limitation in the relevant standard. This plan must be developed by the owner or operator by the source's compliance date for that relevant standard. The purpose of the startup, shutdown, and malfunction plan is to:

i. Ensure that, at all times, the owner or operator operates and maintains each affected source, including associated air pollution control and monitoring equipment, in a manner which satisfies the general duty to minimize emissions established by paragraph (e)(1)(i) of this section;
ii. Ensure that owners or operators are prepared to correct malfunctions as soon as practicable after their occurrence in order to minimize excess emissions of hazardous air pollutants; and

iii. Reduce the reporting burden associated with periods of startup, shutdown, and malfunction (including corrective action taken to restore malfunctioning process and air pollution control equipment to its normal or usual manner of operation).

In addition, the following Recordkeeping/Reporting requirements are added in case of excess emissions during the startup, shutdown and malfunction events:

h. When actions taken by the Permittee during a startup or shutdown (and the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), or malfunction (including actions taken to correct a malfunction) are consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, the Permittee must keep records for that event which demonstrate that the procedures specified in the plan were followed. These records may take the form of a "checklist," or other effective form of recordkeeping that confirms conformance with the startup, shutdown, and malfunction plan and describes the actions taken for that event. In addition, the Permittee must keep records of these events as specified in paragraph 63.10(b), including records of the occurrence and duration of each startup or shutdown (if the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), or malfunction of operation and each malfunction of the air pollution control and monitoring equipment. Furthermore, the Permittee shall confirm that actions taken during the relevant reporting period during periods of startup, shutdown, and malfunction were consistent with the affected source's startup, shutdown and malfunction plan in the semiannual startup, shutdown, and malfunction report required in §63.10(d)(5). [40 CFR 63.6(e)(3)(iii)]

i. The Permittee shall maintain files of all information (including all reports and notifications) required by this part recorded in a form suitable and readily available for expeditious inspection and review. The files shall be retained for at least 5 years following the date of each occurrence, measurement, maintenance, corrective action, report, or record. At a minimum, the most recent 2 years of data shall be retained on site. The remaining 3 years of data may be retained off site. Such files may be maintained on microfilm, on a computer, on computer floppy disks, on magnetic tape disks, or on microfiche.

j. The Permittee shall maintain relevant records for such source of:
(i) The occurrence and duration of each startup or shutdown when the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards;
(ii) The occurrence and duration of each malfunction of operation (i.e., process equipment) or the required air pollution control and monitoring equipment;
(iii) All required maintenance performed on the air pollution control and monitoring equipment;
(iv)(A) Actions taken during periods of startup or shutdown when the source exceeded applicable emission limitations in a relevant standard and when the actions taken are different from the procedures specified in the affected source's startup, shutdown, and malfunction plan (see §63.6(e)(3)); or
(B) Actions taken during periods of malfunction (including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation) when the actions taken are different from the procedures specified in the affected source's startup, shutdown, and malfunction plan (see §63.6(e)(3));

(v) All information necessary, including actions taken, to demonstrate conformance with the affected source's startup, shutdown, and malfunction plan (see §63.6(e)(3)) when all actions taken during periods of startup or shutdown (and the startup or shutdown causes the source to exceed any applicable emission limitation in the relevant emission standards), and malfunction (including corrective actions to restore malfunctioning process and air pollution control and monitoring equipment to its normal or usual manner of operation) are consistent with the procedures specified in such plan. (The information needed to demonstrate conformance with the startup, shutdown, and malfunction plan may be recorded using a "checklist," or some other effective form of recordkeeping, in order to minimize the recordkeeping burden for conforming events);

(vi) Each period during which a CMS is malfunctioning or inoperative (including out-of-control periods);

k. If an action taken by the Permittee during a startup, shutdown, or malfunction (including an action taken to correct a malfunction) is not consistent with the procedures specified in the affected source's startup, shutdown, and malfunction plan, and the source exceeds any applicable emission limitation in the relevant emission standard, then the Permittee must record the actions taken for that event and must report such actions within 2 working days after commencing actions inconsistent with the plan, followed by a letter within 7 working days after the end of the event, in accordance with §63.10(d)(5) unless the owner or operator makes alternative reporting arrangements, in advance, with DAQ. [40 CFR 63.6(c)(iv)]

l. The Permittee must maintain at the affected source a current startup, shutdown, and malfunction plan and must make the plan available upon request for inspection and copying by DAQ. In addition, if the startup, shutdown, and malfunction plan is subsequently revised as provided in paragraph 3.c of this section, the Permittee must maintain at the affected source each previous (i.e., superseded) version of the startup, shutdown, and malfunction plan, and must make each such previous version available for inspection and copying by the DAQ for a period of 5 years after revision of the plan. [40 CFR 63.6(c)(v)]

6. NSPS, NESHAPS/MACT, NSR/PSD, 112(r), RACT, CAM

The Wilders Grove landfill is subject to NSPS Subpart WWW and MACT Subpart AAAA. See Section 5 above for the applicable requirements. The facility is PSD minor, and is not subject to 112(r), RACT or CAM.

7. Facility Wide Air Toxics

The facility requested the removal of the toxic air pollutant conditions per G.S. 143-215.107(a) and 15A NCAC 2Q .0702(a)(27). Since the landfill is subject to MACT Subpart AAAA, *NESHAP for Municipal Solid Waste Landfill*, North Carolina G.S. 143-215.107(a) exempts emission sources subject to MACT standards from NC air toxics regulations provided their emissions do not "present an unacceptable risk to human health."

In order to evaluate the risk of the toxic pollutant emissions, a toxic evaluation was conducted. According to a memo dated October 5, 2005, written by Jamie Sellman of DAQ Air Quality Analysis Branch (AQAB), a dispersion modeling analysis was conducted for benzene and vinyl chloride. The following table shows the percentage of the Acceptable Ambient Level (AAL) of each pollutant based on the maximum emissions from the facility.

Pollutant	Averaging Period	% of AAL
Benzene	Annual	6 %
Vinyl chloride	Annual	2%

As shown in the table, all pollutants' maximum potential emissions were well under the AAL. In addition, the volume of the landfill gas generated in the Wilders Grove landfill have been declining over the years. Based on this analysis, it appears no unacceptable risk to human health beings is presented. Therefore, the toxic air pollutant conditions will be removed from the air permit in accordance with 15A NCAC 2Q .0702(a)(27).

Hydrogen chloride (HCL) emission is usually addressed in most air quality permits in landfill facilities since HCL is formed as a result of the combustion of chlorinated compounds that are included in landfill gas. However, DAQ's database did not have any record of the HCL emissions analysis conducted in the past. Therefore, the facility was asked to calculate potential HCL emissions to see if they need to obtain a permit for HCL emissions. The facility calculated HCL emissions based on the concentration of 23 chlorinated compounds included in the LandGEM. Although EPA's AP-42 Section 2 recommends using the site specific landfill gas data to use this method, the facility used LandGEM to estimate the compounds in the landfill gas. The total gas production of 2014 was used to calculate the emission rates.
According to their calculation, the potential HCL emissions were 1,371 lb/yr or 0.16 lbs/hr, which is lower than the toxic air pollutant permitting emission rate of 0.18 lbs/hr. Therefore, the facility is not required to model the HCL emission as part of the toxic pollutant evaluation.

8. Facility Emissions Review

Wilders Oak Landfill did not include the facility-wide emissions total in their permit renewal application. However, the emissions from this landfill in the next permitting period will be no more than the emissions reported in 2014 emissions inventory. This landfill has been closed since 1997 and the landfill gas generation has been declining over the past years. The actual emissions of the past five years are indicated on the cover of this review.

9. Compliance Status

DAQ has reviewed the compliance status of this facility. In the past five years, Wilders Oak Landfill was issued an NOV on March 19, 2015 for not submitting a semiannual report and an Annual Compliance Certification. During the most recent inspection, conducted on April 9, 2015 by Mr. Steven Carr of the RRO, the facility appeared to be in compliance with all applicable requirements.

10. Public Notice/EPA and Affected State(s) Review

A notice of the DRAFT Title V Permit shall be made pursuant to 15A NCAC 2Q .0521. The notice will provide for a 30-day comment period, with an opportunity for a public hearing. The US EPA will also be given a 45 day review period. Copies of the public notice shall be sent to persons on the Title V mailing list and EPA. Pursuant to 15A NCAC 2Q .0522, a copy of each permit application, each proposed permit and each final permit pursuant shall be provided to EPA.

11. Other Regulatory Considerations

- A P.E. seal is NOT required for this application.
- A zoning consistency determination is NOT required for this application.

- Although the minor source baseline dates for SO2 have been triggered in Wake County, no increase in potential emissions are expected from this facility.

12. Recommendations
TBD